NAVAL WAR COLLEGE
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"FROM THE SEA" VERSUS THE U-BOAT

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this essay reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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THIS PAPER WILL ANALYZE WWII U-BOAT OPERATIONS AGAINST ALLIED SEALIFT WITH FOCUS ON THE PERIOD FROM MAY 1943 TO THE END OF THE WAR. IT WILL SHOW THE RELEVANCE OF THE OPERATIONAL AND STRATEGIC DECISIONS OF THIS HISTORICAL CAMPAIGN TO THE CHALLENGES OF TODAY'S POTENTIAL REGIONAL CONFLICTS. IN 1943, ALLIED TECHNOLOGICAL INNOVATIONS AND CONVOY EMPLOYMENT PRECIPITATED A DECLINE IN U-BOAT SUCCESSES AND CHANGES TO THE OPERATIONAL EMPLOYMENT OF U-BOATS. WAGED IN THE LITTORAL, THE FINAL PORTION OF THE U-BOAT CAMPAIGN PRODUCED FEWER U-BOAT VICTORIES, YET REMAINED AN EFFECTIVE OPERATIONAL SCHEME. IT IS RELEVANT THAT THE INABILITY OF ALLIED FORCES TO CONSISTENTLY THWART SUCCESSFUL U-BOAT ATTACKS, ALONG THEIR OWN COASTLINES, EMPHASIZES A WEAKNESS IN OUR NAVAL STRATEGY TODAY, INSUFFICIENT AND USUALLY LIGHTLY PROTECTED SEALIFT. THE NAVY AND MARINE CORPS JOINT WHITE PAPER, . . . FROM THE SEA, ARTICULATES NAVY SUPPORT OF THE NATIONAL SECURITY AND NATIONAL MILITARY STRATEGIES OF THE UNITED STATES WITH A COMMITMENT TO " . . . CONCENTRATE MORE ON CAPABILITIES REQUIRED IN THE COMPLEX OPERATING ENVIRONMENT OF THE "LITTORAL" OR COASTLINES OF THE EARTH."

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Abstract of
"FROM THE SEA" VERSUS THE U-BOAT

This paper will analyze World War II U-boat operations against Allied sealift with focus on the period from May 1943 to the end of the war. It will show the relevance of the operational and strategic decisions of this historical campaign to the challenges of today's potential regional conflicts. In 1943, Allied technological innovations and convoy employment precipitated a decline in U-boat successes and changes to the operational employment of U-boats. Waged **in the littoral**, the final portion of the U-boat campaign produced fewer U-boat victories, yet remained an effective operational scheme. It is relevant that the inability of Allied forces to consistently thwart successful U-boat attacks, **along their own coastlines,** emphasizes a weakness in our Naval Strategy today, insufficient and usually lightly protected sealift. The Navy and Marine Corps joint White Paper, . . . From the Sea, articulates Navy support of the National Security and National Military Strategies of the United States with a commitment to ". . . concentrate more on capabilities required in the complex operating environment of the "littoral" or coastlines of the earth."[1] In support of this strategy, sealift is an integral part of force sustainment, an important operational capability and, "an enduring mission for the Navy,"[2] which will ". . . ensure heavy joint forces can arrive and fight effectively in major crisis."[3] Coming from the sea, **through the littoral**, to the beach, our limited sealift is a lucrative target for regional actors with modest or even minimal submarine forces.

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CHAPTER I

INTRODUCTION

The only thing that really frightened me during the war was the submarine threat.[1]

-WINSTON CHURCHILL

Much has been written on the heroic but ill-fated German U-boat campaign to thwart resupply of Britain and the Allied war effort on the European continent. Few of these enticing and insightful theses have taken their analyses past the culminating point, where the Germans effectively lost this great campaign, or have shown the relevance of subsequent U-boat operations.

When Admiral Doenitz withdrew his U-boats from the North Atlantic convoy routes on 24 May 1943, he had recognized the culminating point of the U-boat campaign. His new operational scheme was to fight a delaying action, picking away at the Allied resupply effort, while attempting to reduce his losses and buy time. The operational employment of schnorkel equipped submarines allowed him to effectively operate a limited number of U-boats in the littoral, thus avoiding the debilitating losses inflicted by the convoy escorts that had authoritatively seized the initiative in the North Atlantic.

It is this final portion of the U-boat campaign, conducted

along the coastlines of Europe, that is relevant to our intent to operate successfully **from the sea**. The ability to take our limited strategic sealift from the sea, through the littoral, to the beach is suspect. Small numbers of U-boats, operating along heavily defended foreign coastlines, were successful in regularly sinking Allied sealift in World War II. Todays regional actors, operating close to home with even meager submarine assets, will pose a significant threat to our initial deployment and resupply efforts.

An historical analysis of the U-boat campaign conducted during the latter part of World War II has some interesting parallels to our concept of operations for the 21st century. A study of the operational scheme employed during the final portion of Germany's U-boat campaign will illuminate a rift between our Navy's iterated operational capabilities of sealift and force sustainment, and our forces available to perform these enduring missions.

> America's influence depends on its ability to sustain military operations around the globe. It requires a comprehensive and responsive logistics support system, including air and sealift, replenishment ships, mobile repair facilities, and advanced logistic support hubs. It requires open sea lanes of communication so that passage of shipping is not impeded by an adversary.[2]
>
> . . . *FROM THE SEA*

CHAPTER II

SETTING THE STAGE

I don't deny that they're useful (U-boats), but we shouldn't exaggerate their importance.[1]

Grand Admiral Dr Erich Raeder
Supreme CINC of the German Navy, 1939

Preparations, Expectations, and Surprises

In February, 1939 Germany was prepared for war. Czechoslovakia had been occupied and plans were being formalized to invade Poland. Hitler's April 11, 1939 Directive for the Uniform Preparation of War 1939/40 stated, "Policy aims at limiting the war to Poland, and this is considered possible in view of the internal crisis in France and consequent British restraint."[2]

Having assumed that war with a major sea power (Britain) was not expected until 1944/45, the German Navy was woefully prepared for Britain's declaration of war on September 3, 1939. In the spring of 1939, the German Navy Fleet included only 46 U-boats. With the realization that war with England would commence much earlier than forecast, the German Z plan for naval construction was revised. The plan for a balanced surface and subsurface fleet was replaced with a program that listed the top three priorities for construction as battleships/U-boats first, heavy cruisers second, and aircraft carriers third.[3]

Admiral Doenitz, Flag Officer U-boats, was pessimistic regarding the ability of his U-boat force to inflict serious damage

on British merchant shipping. In a memorandum to Grand Admiral Raeder and the Naval Staff, dated September 1, 1939, he wrote, ". . . we can not expect the number of U-boats now on operation to be more than a petty annoyance to British commerce, . . . *At the present moment we are not in the position to play anything like an important part in the war against Britain's commerce.*"[4]

Grand Admiral Raeder agreed with Doenitz. In the autumn of 1939 there were only 26 U-boats capable of operating in the Atlantic. Reflecting on the outbreak of war with England, Raeder wrote, ". . . the submarine arm is still much too weak, however, to have any decisive effect on the war. *The surface forces, moreover,* are so inferior in number and strength to those of the British Fleet that, even at full strength, they can do no more than show that they know how to die gallantly. . . ."[5]

With inadequate surface and meager submarine forces at his disposal, Grand Admiral Raeder was predisposed to a naval campaign against Allied sealift. For this campaign against shipping, the U-boat was the obvious weapon of choice. By September 1, 1939, the German Fleet numbered 57 U-boats with production planned for 20 to 30 each month.[6] Thus, did the battle for the strangulation of Britain fall to Doenitz and his U-boats.

CHAPTER III

THE OPERATIONAL SCHEME

Britain's naval and merchant vessels must be the main target for attack.[1]

Report of Grand Admiral Raeder to
The Fuehrer, 4 February, 1941

The Objective

An Autumn, 1939 observation elicited a concerned comment from Vice Admiral Doenitz. "In Berlin, they don't understand that we can't give the British time to get sufficiently organized to survive these first, very difficult months of the war."[2] After 17 months of conflict, the German strategy for "Economic Warfare"[3] against Britain did not enjoy a unity of effort and Britain had been allowed to survive those difficult, first months of war. It was up to Raeder to convince The Fuehrer of the importance of sealift to the British war effort.

In his Report of the Commander in Chief, Navy, to The Fuehrer dated 4 February, 1941, Raeder stressed the importance of unity of effort in calling for Air Force attacks:

> . . . on supply lines, docks, ships, and harbors. Submarine warfare alone is not in a position to cut off imports effectively . . . hence the Air Force must attempt to hit Great Britain where it hurts most, by attacking her imports . . . our planes and submarines are capable of exerting a decisive influence in the struggle against Britain and America . . . coordinated, well-directed operations against enemy shipping are essential. Ships afloat must be the target of the submarines; ships in harbors and shipyards must be the target of the Air Force.[4]

The Fuehrer agreed, and issued Directive No. 23, Basic Principles of the Prosecution of War against British War Economy.

"The object of our future war efforts must therefore be to concentrate every means of waging war by sea and air on enemy supplies from overseas . . . ."[5] The military conditions required to achieve this objective were overwhelming superiority over, under, and on the sea.

Weak Links in the Operational Scheme

With the U-boat as it's primary weapon, Germany pursued the sequence of actions necessary to obtain the sea control required to prevent Britain's resupply by sea. At the top of the list, since the inception of hostilities, was the increased construction of U-boats. In several conferences on naval affairs, The Fuehrer had been briefed that an increase in U-boat construction was required. Grand Admiral Raeder championed this issue in November, 1939 and again in July, 1940. His requests for increased allocations of steel, other metals, and qualified laborers were repeatedly approved by Hitler.[6] But, The Fuehrer's permission to increase U-boat production lacked a significant factor, the Commander in Chief Navy was not granted the authority to requisition the industry, raw materials or manpower required to carry out the task. Thus, the rate of U-boat construction and delivery was inadequate at 13 boats per month in the first six months of 1941 vice the proposed 20 to 30 per month. This critical deficiency, the inability to procure the strategic resources necessary, proved decisive to the U-boat campaign in the Atlantic.

The unity of effort espoused by the Navy, and echoed by Hitler, in his directive for the prosecution of war against the

British economy, also failed to materialize. German Air Forces were never made available to assist in the war on shipping until too late in the U-boat campaign. That they would have been useful in reconnaissance is an understatement. Admiral Doenitz's lament was that ". . . Germany was waging war at sea without an air arm; that was one of the salient features of our naval operations, a feature that was as much out of line with contemporary conditions as it was decisive in its effect."[7] Allied air cover was able to locate, report, and attack U-boat wolf packs while convoys were rerouted to avoid attack. Doenitz was forced to rely on intelligence reports and U-boat sightings for convoy location.

Vice Admiral Doenitz had correctly determined the British center of gravity to be Allied naval and merchant vessels, and their ability to resupply and support the war effort **from the sea**. His hypothesis was, unknown to him during the war, confirmed by the British Admiralty's argument that "the art of grand strategy was to employ all our forces in furtherance of a common aim, that the accepted aim was the strategic offensive by all arms into Europe, and that the destruction of the U-boats was the necessary prelude to the successful mounting and maintenance of our offensive plans."[8]

Operating within these constraints, the U-boat campaign was still successful. Through July, 1943, U-boats had sunk Allied shipping at a rate in excess of their ability to reconstitute it.[9] Doenitz was unknowingly achieving his operational objective. In his memoirs he wrote:

> Assuming, as we did, that the British and Americans were building more ships than we were sinking, we had already become quite sure, in February, 1943, that victory over the two maritime powers in this war on tonnage could not be achieved. After three and a half years of war it was probably too late to hope for such victory. The German authorities had failed to throw into the Battle of the Atlantic all the forces at their command immediately the war began and they had failed to provide in good time the means we required with which to fight the battle, namely, an adequate number of U-boats.[10]

CHAPTER IV

THE CULMINATING POINT

. . . in May, 1943, things were very different, for our failure in a whole series of convoy battles had shown beyond doubt that the offensive power of the U-boat was incapable of dealing with the defense. . . . the staggering realization came upon us that we could no longer pursue this offensive in its existing form.[1]

Fregattenkapitan G. Hessler
Staff Officer, Operations to
Flag Officer U-boats

Allied Technical Innovations & Employment

March, 1943 marked the culminating point of the U-boat campaign against Atlantic convoys. The exceptional successes achieved by U-boats in the first three weeks of March, 1943 were the source of much concern for the Allies. In his memoirs Doenitz stated, ". . . at the end of March 1943 the British Government concentrated all its efforts on defeating the U-boat. After three and a half years of war we had brought British maritime power to the brink of defeat in the Battle of the Atlantic. . . ."[2]

It is a testimony to British and Allied ingenuity that they were able to thwart the U-boat offensive. The Allies concentrated a predominance of combat power in the region where the threat to vital security was the greatest. Technical and tactical innovations were skillfully and aggressively employed in order to seize the initiative and gain freedom of action.

Aircraft carrier escorts, long range land-based aircraft, and anti-submarine support groups, all employing advanced short wave radar, inflicted heavy losses. In the first 22 days of May, 1943

31 U-boats were lost. Of the 31 boats lost ". . . air attacks accounted for 14, combined air/surface attacks by convoy escorts for five, and attacks by convoy surface escorts for nine. Two U-boats were lost in collision during a convoy battle, and one cause unknown."[3] The comparison of Allied shipping tonnage sunk to the loss of one U-boat is a telling indicator of the decline of U-boat effectiveness in the Atlantic.

> . . . in the first half of 1942 the loss of each U-boat was compensated by the sinking of 272,000 tons of Allied shipping. In the second half of 1942 the corresponding figure was 78,200 tons, and in the first quarter of 1943 it was 51,300 tons. But in May, 1943, we achieved the sinking of only one ship of 8,500 tons for the loss of each U-boat.[4]

Post war analysis would put these war time estimates even lower.

Culmination, Reaction and Implications

Vice Admiral Doenitz misjudged the point where his strength as the attacker no longer significantly exceeded that of the defender, and beyond which continued offensive operations risked overextension, counterattack and defeat.[5] His campaign in the Atlantic reached culmination before his objective was achieved. On 24 May, 1943 Vice Admiral Doenitz abandoned U-boat operations on the North Atlantic convoy routes. A member of the German Naval Staff wrote:

> . . . the crux of the U-boat campaign was the maintenance of the offensive against the Allied life-line in the North Atlantic. But now the staggering realization came upon us that we could no longer pursue this offensive in its existing form. Indeed, the latest experiences had shown that the striking power of the U-boat threatened to collapse in every theater of war.[6]

Vice Admiral Doenitz's critical decision had distinct

strategic and operational implications. The supply and sustainment of the Allied war effort was improved. Yet, by continuing to bring U-boat forces to bear against Allied shipping, in areas other than the North Atlantic convoy routes, he forced the Allies to allocate forces to the continued defense of sealift vice shifting these forces to other theaters of war. In recognition of the importance of this effort the German Naval Staff wrote, "Even if the U-boat arm finds itself unable completely to overcome current difficulties and to maintain the successes of the past, it must nevertheless continue the fight with all available forces, since by their activities the U-boats destroy or tie down enemy forces many times their own strength."[7]

CHAPTER V

REVISING THE OPERATIONAL SCHEME

This decision (evacuating the North Atlantic convoy routes) denotes a temporary abandonment of the fundamental principles which have so far governed the U-boat campaign. The change of policy is dictated by the need to avoid unnecessary losses in a period when our weapons are shown to be at a disadvantage. It must be realized, however, that as soon as our boats have been equipped with new weapons, the battle in the North Atlantic, the decisive area, will be resumed.[1]

Grand Admiral Doenitz

Maneuver

Although Grand Admiral Doenitz declined battle on the North Atlantic convoy routes, he had neither altered his objective or his opinion of the decisive area. Through a flexible application of the available combat power, he maneuvered to bring his remaining strength to bear against a weaker point.

Doenitz maneuvered his forces to suit a revised operational scheme. He fought a delaying action, picking away at Allied shipping, while attempting to reduce his losses and buy time. In order to resume his battle in the decisive area of the North Atlantic he required improved U-boats with better anti-aircraft armament, an acoustic homing torpedo, more efficient radar search receivers, and the schnorkel. These improvements would take time, and the losses during the wait would be high. Reviewing the costs and risks associated with his operational scheme Doenitz wrote in June 1944, "The U-boat campaign must be continued with the forces available. Losses, which bear no relation to the success achieved,

must be accepted, bitter though they are."[2]

The withdrawal from the North Atlantic was a phased evolution. Initially, those boats low on fuel remained on station to conceal the withdrawal. Other boats, redeployed south-west of the Azores to attack the southern convoys, were unsuccessful in their efforts. Success, however, was being achieved in the remote operating areas along the coastlines of North and South America, and the Caribbe But even these successes were short lived as the Allies located a. destroyed the U-boat refueling vessels. Of the 43 boats deployed to the remote areas, 14 were lost. They managed, however, to sink or damage 35 ships.[3] The withdrawal continued, the U-boats in the Western Atlantic redeployed to the Eastern Atlantic in November, 1943 and by December they were concentrated west of the British Isles. By June, 1944, Doenitz concluded that "the policy of tying down the enemy forces has so far been successful." But, the cost had been great. "Now chances for attack are comparatively remote, while those of not returning from operations are very high. In the past few months an average of only 70 per cent of all boats has returned from operations. . . ."[4] Time was running out.

The Schnorkel

> **Since 1940 we had given up operating in shallow waters such as those of the Channel. But the Schnorkel now made such operations feasible again.[5]**
>
> Grand Admiral Doenitz

On June 6, 1944 the first schnorkel equipped boats sailed into battle against shipping employed in the Allied invasion at Normandy. Doenitz sums up the results in his memoirs. "In succession, thirty boats equipped with Schnorkel had taken part in

45 operations, in which 20 boats were destroyed. We had lost nearly 1,000 men, of whom 238 had been rescued."[6] Against these losses, the U-boats had sunk or damaged 28 ships including escort vessels, merchantmen and landing craft.[7] Doenitz c sidered the operation a success, citing an American Air Force Instructional Handbook issued during the war. "If a U-boat sinks two 6,000 ton ships and one 3,000 ton tanker, here is a typical list of the sort of loses we should incur: 42 tanks, 8 6-inch howitzers, ... To inflict similar losses by air raid the enemy would have to fly 3,000 sorties!"[8] **Very lucrative targets!**

The Littoral

> **It is the schnorkel, alone, which now enables us again to operate close in to the British coast, and to continue using the older boats until the new-type are ready. . . .**
> Grand Admiral Doenitz, September, 1944

The last phase of the U-boat campaign was contested in the challenging, shallow waters along the coasts of the United Kingdom and North America. Both the U-boats and the Allied anti-submarine forces faced great difficulties operating in this demanding environment.

The U-boats found navigation, while almost continuously submerged, to be quite difficult. The strong currents along the British coast were particularly challenging. They also found the dense shipping traffic in the channel to be unnerving, as the following extract from the log of the bottomed U.480 attests.

> 1500. North bound convoy suddenly passes overhead. . . . To explain the situation in the operational area, let it be said once more that barely five minutes pass without the sound of depth-charge detonations. Asdic impulses are constantly audible on all bearings.

> The noises made by 'circular saws' and sonic buoys complicate our hydrophone listening, so that it is often impossible to use the hydrophone tactically. Machine-gun and pom-pom fire is frequently audible, apparently fired by patrol vessels. Landing-craft are to be encountered everywhere, not only on the defined routes, so that by day it is almost impossible to identify a convoy by hydrophone . . . .[9]

Lieutenant Commander Douglas M. McLean, a maritime surface specialist officer with a background in antisubmarine warfare (ASW), succinctly articulated the Allied challenges.

> The Allies discovered that shallow water ASW was, for many reasons, a particularly demanding art. Sound conditions are extremely changeable in shallow water, a function of tidal and current variations. The effect of the bottom is another factor . . . rocks and shoals, as well as shipwrecks and schools of fish, can produce convincingly submarine-like echoes. Finally, the effect of fresh water from rivers and streams is frequently pronounced and, in combination with temperature variations, can cause especially dense layers to form in the water that so affect the propagation of sound as effectively to blind the sonar of a searching warship. Consequently, warships acting as close escort to World War II convoys rarely detected a U-boat in shallow water before the submarine attacked.[10]

By December, 1944 the U-boats had become more proficient in operating in shallow water. During that month they torpedoed eleven ships in British waters with no U-boats lost as a result of these attacks. "Although the shipping losses to U-boat attack at this time were insubstantial in comparison to the vast flow of Allied trade now crossing the Atlantic, the impotence of antisubmarine forces was evident."[11] But the Allies quickly compensated, by February, 1945 they had improved the odds to the destruction of 14 Allied ships at the cost of 12 U-boats.[12]

Despite enormous challenges, Doenitz had successfully employed his assets and presented an effective threat to Allied sealift

right up to the end of the war. His strategy of operating in the littoral, at the focal areas of the shipping routes, was an effective operational scheme. By changing his area of operations and employing technical improvements to his weapons, Doenitz had at least reached parity, if not an advantage, in his battle against Allied shipping.

> **. . . at the end of January 1945, . . . our losses had declined sharply. They amounted to 10.4 per cent of the boats at sea and were thus very little higher than those in the second half of 1942 and lower than those in 1940 and 1941. . . . thanks to the effectiveness of the Schnorkel and the indomitable enterprise of our U-boat captains and crews, what had started as a purely defensive delaying action was transformed into an offensive campaign in the enemy's coastal waters.**[13]
>
> Grand Admiral Doenitz

CHAPTER VI

SEALIFT & TOMORROW'S STRATEGY

The fundamental elements of our national defense strategy -- strategic deterrence and defense; forward presence; crises response; and reconstitution -- are clearly defined and will remain valid for the foreseeable future.[1]

National Security Strategy of the United States, January, 1993

The United States requires sufficient strategic mobility to rapidly deploy and sustain overwhelming combat power in any region where US national interests are threatened.[2]

National Military Strategy of the United States, January, 1992

If and when our diplomatic, political, and economic efforts cannot prevent conflict, we are committed to the projection of power, around the globe, to meet any regional contingency. With or without the support of our Allies, we expect to confront a less equipped and less capable foe with a technologically advanced and highly trained force. We are placing great emphasis on our superior technology and training because we, and our Allies, will be deploying a reduced force. Sized specifically to succeed in regional conflicts, our national militaries are smaller than those fielded in the Cold War era.

The National Security and Military Strategies of the United States place great emphasis on our ability to maintain a forward presence, rapidly deploy in response to crises, and sustain our forces in any region across the vast oceans of the world.

> **Our nation must remain capable of delivering heavy equipment and resupplying major ground and air combat power forward in crisis. Sealift is the key to force sustainment for joint operations and we are committed to a strong national sealift capability.**[3]
>
> . . . From the Sea,
> September, 1992

Our Navy has committed to the challenge of structuring a ". . . fundamentally different naval force to respond to strategic demands."[4] No longer will we structure our force on a premise of the open-ocean war fighting scenario of the Cold War era. Now we will structure our force and doctrine on the tenet of

> . . . joint operations conducted **from** the sea. We will be part of a 'sea-air-land' team trained to respond immediately to the Unified Commanders as they execute national policy. Beyond the shift in emphasis for the naval forces, there are some traditional naval missions for which we must redouble our efforts to improve our capability. Of particular importance, sealift is an enduring mission for the Navy.[5]

Grand Admiral Doenitz, skillfully employed a relatively small but highly effective submarine force. Utilizing sound doctrine and a clear strategy, he inflicted significant damage on a numerically and technologically superior foe. In World War II, 1,172 U-boats sank 2,828 merchant ships while suffering 785 U-boat losses.[6] "In addition, German U-boats sank 175 Allied warships . . . ."[7] From January through May 1945, a fleet of 349 remaining U-boats (averaging 20 boats deployed per day), and operating primarily in the littoral, sank 55 ships.[8] What might be the effect if we sustained comparable losses to our sealift forces today? We can always afford to speculate. But, with limited sealift assets, we can ill afford to lose.

Sealift

We need a force capable of projecting power quickly when and where it's needed. . . . and the Navy must maintain sufficient . . . forces, as well as more sealift.[9]

President Bill Clinton

In 1945, the United States had the worlds largest privately owned merchant fleet. We now rank 16th in numbers of vessels and 10th in carrying capacity.[10] Since those prolific post WWII years, the U.S.-flag share of the nations waterborne foreign commerce has dropped from over 60% to between 4 and 5 percent since 1970.[11] Is the United States, the preeminent naval power, still a maritime power?

During the Gulf War we depended on both U.S. and foreign flag sealift to deliver "3.2 million short tons of dry cargo and more than 6 million tons of petroleum product."[12] "Of the total cargo needed to support allied forces in the Persian Gulf, 95% went by sea.[13]

What are our current strategic sealift assets? Military Sealift Command (MSC) operates 67 Strategic Sealift Ships including; eight Fast Sealift Ships, 16 Chartered Tankers, 14 Chartered Dry Cargo Ships, 12 Afloat Pre-positioning Ships, 13 Maritime Pre-positioning Ships, two Hospital Ships, and two Aviation Logistics Support Ships.[14] Our Ready Reserve Force (RRF) consists of 96 government-owned commercial ships in an inactive status.[15] These are mostly roll-on/roll-off (RORO), breakbulk, and tanker vessels assigned to 4-, 5-, 10-, or 20 day reactivation readiness groups.[16] The U.S. Flag Merchant Fleet is 258 militarily useful ships owned and operated by U.S. companies and registered

under U.S. flag.[17] The preponderance of this fleet are 123 tankers and 86 container ships.[18] An Effective U.S. Controlled Fleet of 125 militarily useful ships that are U.S. owned, but registered under foreign flag, may be made available during a U.S. conflict on a country-by-country basis.[19] This fleet is composed of 82 tankers, seven passenger, and 36 dry cargo ships.[20] Best case, our current U.S. Strategic Sealift stands at 546 ships. Is it enough? During a single regional contingency (Desert Storm), we used some 275 dry cargo ships alone.

> **Overall conventional force capability is adequate; but there are deficiencies in rapid strategic lift, supporting elements, and sustainment.**[21]
>
> Joint Chiefs of Staff, 1993

Fortunately we have recognized the rift between our Navy's iterated operational capabilities of sealift and force sustainment, and our forces available to perform these enduring missions. Previous congressional funding, plus additional funding in the FY 1993 budget, were indicative of improved procurement of additional strategic lift assets. Unfortunately, the sealift acquisition program profile has slipped.[22] The tradeoff is risk. "The US armed forces that are programmed in the FY 1994 President's Budget request are adequate to accomplish our national security objectives with low to moderate risk."[23]

The Threat

The threats and vulnerabilities to sealift are many and varied. Some examples include; submarines, mines, missiles (air or surface to surface), fast patrol boats and more. The United States Marine Corps (USMC) is of the opinion that aircraft are the primary

threat to sealift, with fast patrol boats second, and lists "ten other threats of concern."[24] For the purpose of this analysis I will restrict my comments to the submarine threat.

Numerous third world and regional military powers have acquired modern diesel submarines. Algeria has two Soviet Kilo class with more on order, Iran has two Kilos with another delivery pending, North Korea has 26 Romeo class submarines, and Libya has five ex-Soviet Foxtrots and six Yugoslav Mala class submarines. China, a world power, has 30 active diesel submarines, 50 in reserve, five Han class nuclear submarines, and is actively pursuing increasing and improving its submarine assets.[25]

The submarine is an ideal weapon for the "weak maritime powers who face stronger naval powers" in the "commerce war."[26] Our requirement for seaborne transport of military resources is vulnerable to interdiction by a submarine capable of "independent operations and stealthy enough to survive clashes with superior forces."[27] In most cases the Navies of the Third World are designed and employed to "delay outside intervention--or make it too costly."[28] But possessing a force of modern submarines is not enough. To be successful, as Doenitz was in WWII, they must be manned by well trained and determined crews, and led by skillful operational commanders. Because, as history bore out in WWII, most, if not all, of the submariners who seek to interdict U.S. sealift in the regional conflicts of tomorrow, will go down with their boats. The question for us is, can we afford to allow a Third World submarine more than, or even, one successful

engagement?

To totally deny an opposing, regional submarine force access to our sea lines of communication (SLOC) would require exhaustive military resources and limit the forces available to project power ashore. With limited military resources, due to downsizing, we are structuring a naval force that is incapable of worldwide sea control and arguably capable of geographically selective sea control.

> **In the mission area of strategic sealift and its protection, we need not maintain complete control of all the oceans of the world at any given time, but we must be able to control the parts of the world's open oceans that affect our ability to get strategic sealift to a crisis area when it's required.**[29]
>
> VADM. William A Owens
> DCNO for Resources, Warfare
> Requirements & Assessment (N8)

VADM Owens proposes an argument well suited to our current and future force. With more capable, but less, naval assets available, the protection of strategic sealift becomes an "area defense. . . you will never be able to have enough ASW around each of those ships individually to ensure its protection."[30] So, for Sixth Fleet's area of responsibility, the goals were to avoid diesel submarines and ensure "that they never had the advantage. . . . And that is a much easier task than going out and eliminating them."[31]

Avoidance of the submarine threat is a reasonable tactic, but it can not guarantee the protection of sealift assets. We must endeavor to sail our sealift with an acceptable level of anti-submarine assets in support. Whether surface, subsurface, or airborne, an ASW asset must be available any time our sealift transits an area where our control of the sea is in doubt. These

ASW forces must be capable of localizing, tracking, and successfully attacking any submarine attempting to interdict our sea lines of communication.

The best indicator of our commitment to improving and protecting our strategic sealift is our funding for sealift and ASW programs. It is unfortunately prophetic that "the sealift acquisition program profile has slipped,"[32] and that ASW forces are being reduced in numbers and emphasis.

CHAPTER VII

CONCLUSION

In the event of another major regional crises like DESERT STORM, our strategic sealift resources would be stressed to their limits. Under less demanding scenarios, there is currently sufficient sealift to support our existing regional plans. However, sealift may be inadequate to meet the demands created by multiple regional crises.[1]

General Joseph P. Hoar
Commander in Chief
United States Central Command

In the latter portion of the WWII U-boat campaign, an outgunned German submarine force sought to contest Allied sealift in the littoral. It proved to be an effective operational scheme relevant to our recent commitment to ". . . concentrate more on capabilities required in the complex operating environment of the 'littoral' or coastlines of the earth."[2]

Our ability to execute "an enduring mission," sealift, is questionable. We must assume that potential foes have learned a lesson from Desert Storm and will endeavor to interdict our sea lines of communication. Our chances of unimpeded force buildup, **from the sea**, are unlikely. In any future conflict, we must expect that a regional power, possessing submarine forces, will challenge our control of the sea. We must be ready to deny an enemy this opportunity. Our ability to control the seas, at least regionally,

must be fostered, funded, and maintained. Our sealift assets must be increased and improved, and adequate numbers of ASW platforms maintained and exercised for defense of these lucrative targets.

> **In the narrow seas, modern technology . . . can achieve sea denial with out requiring superior surface naval forces. This has tended to deprive traditional seapower of its ability to command narrow seas adjacent to enemy-held lands. To do so requires of it the expenditure of quite inordinate assets, for questionable gain.**[3]
>
> Charles W. Koburger, Jr.
> Narrow Seas, Small Navies, and Fat Merchantmen

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